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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/212,657	12/15/1998	DAE-GYU MOON	8733.133.00	8157
30827 7590 01/25/2008 MCKENNA LONG & ALDRIDGE LLP 1900 K STREET, NW WASHINGTON, DC 20006			EXAMINER NGUYEN, DUNG T	
			ART UNIT 2871	PAPER NUMBER
			MAIL DATE 01/25/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/212,657

Applicant(s)

MOON, DAE-GYU

Examiner

Dung Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/31/2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 27-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 27-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/31/2007 has been entered.

2. Applicants' response dated 10/31/2007 has been received and entered. Claims 27-34 are remain pending in the application.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 27-34 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al., US Patent No. 6,147,667, in view of Sposili et al., Single-Crystal Si-Films via a Low Substrate Temperature Excimer-Laser Crystallization Method.

Regarding claims 27-29 and 33-34, Yamazaki et al. discloses a system on panel typed liquid crystal display (LCD) device (semiconductor device)(figures 1 and 6A-6B) comprising:

- . a first glass substrate (101/631);
- . a pixel array (pixel matrix circuit 102);

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- . a driver circuit (103/104);
- . a controller unit (logic circuit 105);
- . a second substrate (654);
- . a liquid crystal layer (656).

Yamazaki et al, however, do not disclose the controller unit including an active layer in which silicon grains have a length beyond a single pulse lateral growth distance. Sposili et al. do disclose a thin film (Si-film) which used as an active layer can have a length beyond a single pulse lateral growth distance (see page 954, lines 15-16). Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to employ the Yamazaki et al. controller to have an active layer with silicon grains have a length beyond a single pulse lateral growth distance as shown by Sposili et al in order to improve a mobility characteristic of an active layer (see Introduction).

Regarding claims 30-32, Yamazaki et al. discloses the claimed invention except for a based material for an active layer being polycrystalline silicon or an amorphous silicon. It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ such polycrystalline silicon or an amorphous instead of crystalline silicon for an active layer in the thin film transistor, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use in a thin-film circuit.

Response to Arguments

5. Applicant's arguments filed 10/31/2007 have been fully considered but they are not persuasive.

Applicant's arguments are as follow:

- a. Sposili fails to cure the deficiencies of Yamazaki, since Sposili discloses a sequential lateral solidification (SLS) process that performed at a relatively low heat while the Yamazaki's performed at a high temperature (Yamazaki process is much higher than the temperature of the Sposili process) that is incapable of producing "silicon grains" as claimed.
- b. One of ordinary skill in the art would not and could not combine Yamazaki and Sposili and arrive at the claimed invention with any reasonable expectation of success. Further, Yamazaki discloses that processing at high temperature is necessary to his invention while Sposili merely discloses low energy and low temperature processing.
- c. the Examiner is improperly using hindsight to establish using SLS technology since at the time of the present invention, SLS technology was brand new.

The Examiner's responses are as follow:

- a. As stated in the previous office action, the Examiner agrees that the Yamazaki's processing might different from the Sposili's processing; however, the modification to the Yamazaki would replace the Yamazaki's active layer processing by the Sposili's active layer processing to improve a mobility characteristic of an active layer by having silicon grains have a length beyond a single pulse lateral growth distance rather than forming the Yamazaki's active layer (only) by the SLS method. In other words, one of ordinary skill in the art would be able to

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merely find how to modify the Yamazaki's active layer by using the SLS technology rather than a known process.

b. It should be noted that although Applicant stated that the Yamazaki process is much higher than the temperature of the Sposili process, Applicant provides no evidence to support such contention. In particular, there is nowhere in the Sposili's SLS process shown that how low is low of the temperature enough comparing to the Yamazaki's process. Therefore, the modification to the Yamazaki's device would have not been sure unsatisfactory for its intended purpose, then the modification would be proper to make the proposed modification as well.

c. In response to applicant's argument that SLS technology was not well known to one of ordinary skill in the art, it should also be noted, as stated in the previous office action, although the SLS technology is novel at the time of the invention was made, it is *known* at that time. In particular, the application of the SLS process in the Sposili's article was public in 1997 (*Mat. Res. Soc. Symp. Proc Vol 452*) as well as the report of SLS process was back to the year of 1996 (see *MRS Abstarct 1996 Fall Meeting*) while the effective filing date of the instant applicant is the end of the year 1998 (more than a year later reported SLS process). Therefore, one of ordinary skill in the art would be able to merely find how to apply such SLS in the Yamazaki's device to improve a controller unit (e.g. thin film transistor with the improvement active layer).

Conclusion

All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under

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37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung Nguyen whose telephone number is 571-272-2297. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 571-272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DN
01/22/2008

/Dung T. Nguyen/
Dung Nguyen
Primary Examiner
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